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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,933	12/04/2001	Demetri Psaltis	0007975-0018	9300
23600	7590	07/07/2004	EXAMINER	
COUDERT BROTHERS LLP 333 SOUTH HOPE STREET 23RD FLOOR LOS ANGELES, CA 90071			KANG, JULIANA K	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,933

Applicant(s)

PSALTIS ET AL.

Examiner

Juliana K. Kang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,8-14 and 16-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-30 is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8-14 and 16-22 is/are rejected.
- 7) ☒ Claim(s) 31-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Applicant's communication filed on April 26, 2004 has been carefully studied by the Examiner. In view of further search, however, and the consequent discovery of a previously uncited prior art document, a new rejection is applied to the pending claims. The late discovery of the newly applied reference is sincerely regretted. This action is not made final.

Applicant has amended the specification to over come the objections. Thus, the objections to the specification stated in the previous Office action are hereby withdrawn.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5-6 and 9-14 are still rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has not over come all the rejections stated in the previous Office action. The rejections stated in the previous Office action regarding claims 5, 6, 8-14 are hereby maintained.

In addition to the previous rejections, claim 10 recites the limitation "said diffracted beam." There is insufficient antecedent basis for this limitation in the claim.

Claim Objections

3. Claims 2, 3, 6, 9, 10, 11-13 and 31-34 are objected to because of the following informalities: Claim 1 has amended "a holographic filter material" to "a holographic filter." However, the rest of the claims still recite "a holographic filter material." Please amend the rest of the claims to recite "a holographic filter" in order to be consistent with their preceding claim.

Regarding claim 31, the recited limitation "said holographic drop filter" in line 5 should be corrected to read "a holographic drop filter" and "a holographic drop filter" in line 6 should be corrected to read "said holographic filter." Also "one of plurality of WDM channels" in line 8 should be corrected to read "said diffracted one of said plurality of WDM channels." Appropriate corrections are required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5, 6, 8-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima (U.S. Patent 6,246,818 B1), and further in view of Cormack (U.S. Patent 6,587,608 B2) as best understood by the Examiner with rejections/objections stated above and in the previous Office action.

Regarding claims 1-3, and 6, Fukushima disclose a tunable optical drop filter comprising a quasi phase-conjugate optical system comprising a lens (52) and a mirror (54) which is optically coupled to a tunable filter (28), an input optical fiber (22A), drop optical fiber (22C), a through optical fiber (48); and a free space circulator (22) optically coupled to the input fiber, drop optical fiber, and the filter. Fukushima further teaches collimated optical beams. However, Fukushima does not teach that the filter is a holographic filter. Cormack teaches a tunable drop filter wherein the filter divides the input beam into a drop beam and a pass beam. Cormack further teaches the tunable filter can be any of known filters including a holographic Bragg grating that can be rotated (see column 9 lines 17 and 27). Thus, one with ordinary skill in the art would easily recognized the use of any known filter a holographic filter in Fukushima as taught by Cormack as long as the filter drops and passes a WDM signal.

Regarding claim 5, Fukushima teaches a WDM input signal (see column 5 line 18).

Regarding claims 8-14, Fukushima and Cormack teach the claimed limitations including a quasi phase-conjugate diffracted beam of light, reflecting the diffracted light back to the filter retracing the input path identically, a holographic Bragg grating and the circulator to drop the diffracted signal (see especially column 2 lines 43-53 of Fukushima).

Regarding claims 16 and 17, as described above Fukushima and Cormack teach the claimed invention. Fukushima further teaches a first mirror (54) coupled to the free space circulator and an optical system (36).

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Regarding claims 18 and 19, Fukushima and Cormack teach rotating the holographic drop filter to tune the filter to drop and pass the SEM signal (see Cormack column 9 line 27).

Regarding claim 22, use of a photorefractive crystal for a hologram is well known in the art.

6. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima and Cormack as applied to claim 16 above, and further in view of Domash (U.S. Patent 5,937,115).

As described above, Fukushima and Cormack teaches the claimed invention except that the holographic drop filter that has a refractive index that can be altered by an external electric field. Domash teaches using hologram Bragg gratings (filter) that are electronically switchable to adjust the diffraction with great efficiency by altering the refractive index (see column 8 lines 15-42). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use electronically switchable hologram Bragg gratings in Fukushima and Cormack as taught by Domash to adjust the diffraction with efficiency. Since the refractive index of the hologram Bragg gratings (filter) can be altered by an external electrical field, any reasonable refractive index including the claimed refractive index range would have been obvious to one having ordinary skill in the art at the time the invention was made as long as an optical diffraction occurs for a desired application.

Allowable Subject Matter

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8. Claims 23-30 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: There is nor prior art of record that teaches or reasonably suggests claimed filter with all the specific elements and the specific combinations including a holographic drop filter coupled to a first mirror and an optical system comprising a lens and a second mirror wherein the optical system redirects a diffracted at least one of a plurality of WDM channels by the holographic drop filter back into the holographic drop filter and to a third fiber optic collimator as set forth in claim 23.

9. Claims 31-34 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action. The following is a statement of reasons for the indication of allowable subject matter: There is nor prior art of record that teaches or reasonably suggests claimed method to tune a filter with all the specific elements and the specific combinations including coupling a first mirror to a free space circulator and directing a diffracted one of plurality of WDM channels to an optical system by a holographic drop filter back into the holographic drop filter by the optical system as set forth in claim 31.

Conclusion

10. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348. The examiner can normally be reached on Mon. & Fri. 10:00-6:00 and Tue. & Thur. 10:00-3:00.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Juliana Kang
July 6, 2004